

# **THE REPRODUCTIONS ENCYCLOPEDIA**

**Cold Type in a Capsule**

# Cold Type in a Capsule

By CARLTON HERRICK

"DIRECT IMPRESSION," "strike on" and "carbon set" are similar terms used to describe the production of a cold-type image by striking a type matrix through a carbon-ink carrier against an image carrier of paper or plastic. The images so produced are usually black on white and always positive reading. The image may be set in galley form for use with other elements as part of a pasted-up mechanical. Or, the image may be set as an entity—a complete page, ruled form, notice, advertisement, etc. One of the distinct advantages of cold type is the facility to set a finished piece of typography and bypass what, in metal, would be stonework or make up. In some cases, the typography can be set directly to the offset printing plate bypassing both mechanical paste ups and camera work.

The chief methods of producing direct-impression cold-type composition are: 1) Electric typewriters; 2) Justowriter; 3) VariTyper. Each type of machine shares in common the use of a carbon ribbon to create the type image.

*Electric typewriters* provide uniform type impressions, well designed proportionally spaced type (each letter occupying linear space appropriate to its design), and a faster keyboarding rate than either the Justowriter or the VariTyper. The electric typewriter is generally limited by the fact that only one type size and style is available on each machine, with the exception that in some models certain type bars are easily removed for the substitution of other type bars carrying such special symbols as superior and inferior figures or Greek letters and mathematical symbols. Vertical spacing is limited to ratchet design on the image-carrier platen, ranging 7, 6,  $6\frac{1}{2}$ ,  $5\frac{1}{2}$ ,

5 and 4½ lines an inch. This line spacing can also be altered by doubling or tripling the numbers of lines of space between type lines. Type sizes in a selection of about 15 different styles range from 8-pt to 14-pt type. Of course, different type styles can also be achieved by photographic enlargement or reduction.

*The Justowriter* is, in effect, a modified electric typewriter. Its special contribution to cold-type composition is its unique method of justifying copy. (Justified copy has flush right and left margins). To produce justified copy on an electric typewriter, it is necessary to code the rough copy for justifying spacing and then insert such space in a second keyboarding to produce the justified finished copy. The Justowriter, to overcome this, consists of two units in tandem. The first unit is called the "recorder" and the second unit, the "reproducer." As the rough copy is typed, the recorder perforates a paper tape which includes special codes for justification. A simple electronic computer, as part of the recording unit, calculates the necessary space for equalizing the length of the lines. This tape is then placed in the reproducer which is equipped with a reader. The reader interprets the coding in the tape and by electronic relay activates its typewriter to produce a justified, final type image.

All other signals, such as for capitalizing letters, are also punched into the tape along with the code for each individual character and punctuation mark as it is typed. Other codes for deleting incorrect lines, or for stopping the reader so that certain adjustments in the finished copy may be made by hand, are also punched into the tape. The same techniques used to encode justification may also be used to center headings and to space out columnar tabulations automatically. Type sizes and styles are approximately the same for the Justowriter as for electric typewriters.

This automatic typing does not require participation of an operator other than to insert tape and image carrier and to monitor its run occasionally. And, because it operates at a higher speed than the average typist can achieve, it is quite customary for one reproducer to handle the tape product of two or three recorders.

*The VariTyper* differs from the previous machines in several respects. Instead of striking a type image against the face of a carbon carrier, a hammer strikes the image carrier from behind pressing it against the carbon carrier and the type matrix and thereby producing the type image. The image carrier, instead of being inserted in the rear of a cylindrical platen and advanced, is rolled and inserted in a basket and advanced between a set of platens.

VariTyper machines are not limited to one type style and size; a

library of almost 1100 type styles and sizes is available. Styles are adaptations of standard type families and sizes range from 4 pt (in Copperplate) and 6 pt to 13 pt. Because both vertical and horizontal spacing are variable, condensed type faces in large type sizes are available.

Justification on the VariTyper is semi-automatic. While requiring a second typing, space between words is inserted automatically to achieve flush left and right margins. It is interesting to note that while the VariTyper is an electrified machine, only the impression-making hammer (for uniform impression) and an auxilliary device for making ruled lines and leader lines are electrically powered. The keyboard action and the carriage and paper advance are mechanical.

Included in the VariTyper library of type fonts are many foreign language types and several special mathematical and formulae types. These, together with the ease of type interchangeability, have made the VariTyper an efficient machine for setting copy that usually is termed "bonus" or "penalty" typesetting by traditional standards.

To demonstrate the product of these various machines, the following examples will show—where possible—the same material set on all three machines. For example, a standard newspaper column:

#### EXAMPLE A-1

New York, April 7--James Connors, embattled chief and spokesman for the dissident Citizens' Committee for Safer Public Parks and Streets, today carried his fight into the Mayor's chambers. Visibly angry at the failure of the Board of Estimate to consider his proposals, Connor shouted down the Board chairman, Daniel Forley, and prevented the routine meeting from proceeding until police intervened. Removed from the scene by two patrolmen, Connors continued to admonish the administration for over an hour from the steps of City Hall.

#### EXAMPLE A-2

New York, April 7--James Connors, embattled chief and spokesman for the dissident Citizens' Committee for Safer Public Parks and Streets, today carried his fight into the Mayor's chambers. Visibly angry at the failure of the Board of Estimate to consider his proposals, Connor shouted down the Board chairman, Daniel Forley, and prevented the routine meeting from proceeding until police intervened. Removed from the scene by two patrolmen, Connors continued to admonish the administration for over an hour from the steps of City Hall.

### EXAMPLE A-3

*In example A-1 the type was set on IBM typewriter, Text Type and reduced, example A-2 was set on Justowriter, Galvin type style and reduced, while example A-3 was set at size on VariTyper in Tribune News, 7½ pt.*

New York, April 7—James Connors, embattled chief and spokesman for the dissident Citizens' Committee for Safer Public Parks and Streets, today carried his fight into the Mayor's chambers. Visibly angry at the failure of the Board of Estimate to consider his proposals, Connor shouted down the Board chairman, Daniel Forley, and prevented the routine meeting from proceeding until police intervened. Removed from the scene by two patrolmen, Connors continued to admonish the administration for over an hour from the steps of City Hall.

The next example is from a text page for a book. Many publications do not require that such text be justified, so we show here, in example B-1, unjustified text, while the other two examples are justified:

### EXAMPLE B-1

DESERT RECLAMATION

135

the pumping station sites.<sup>4</sup> Topographical studies conducted prior to 1953 indicate a gravity flow system that would provide an annual supply of 37,000,000 gallons to an area of over 7,000 square miles. By use of a system of natural channels to the point of dispersal, construction of feeder system represents only 27.6% of the proposed budget.

Army engineers surveying the area have reported that, according to the designs prepared by the Corps in 1961, by employing precast concrete conduits the dispersal system could be completed well before the pumping stations and gravity systems were ready. If construction were to begin within the first quarter of 1965, the first stages of reclamation in this area could be underway by May 1966.

### EXAMPLE B-2

DESERT RECLAMATION

135

the pumping station sites.<sup>4</sup> Topographical studies conducted prior to 1953 indicate a gravity flow system that would provide an annual supply of 37,000,000 gallons to an area of over 7,000 square miles. By use of a system of natural channels to the



VariTyper® 660



## EXAMPLE B-3

### DESERT RECLAMATION

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Example B-1 is set in IBM Typewriter, Bold Face #1, with running head in Bold Italic, reduced 20 per cent. Example B-2 is set on the Justowriter in the same type styles, reduced 25 per cent, and example B-3 is set on the VariTyper in Schoolbook style, 8-point type at size.

Tabulated and statistical matter have been done on typewriters so much that the product is familiar to all. By various devices, headings and subheadings are handled adequately and the facility of setting tabular stops to speed the process has cut costs appreciably. In the following examples, C-1 will serve for either electric type writer or for Justowriter and example C-2 is the same data set on VariTyper in sans serif faces.

## EXAMPLE C-1

### RETAIL SALES FOR BRANCH DIVISION

Figures in Thousands

CITY	SALES--1963	COSTS--1963	GROSS PROFIT	PER CENT NATION SALES
Buffalo	\$ 800	\$ 625	\$ 175	0.2
Cincinnati	4,750	3,390	1,440	8.0
Detroit	5,880	4,970	990	11.2
Erie	350	285	75	0.06

## EXAMPLE C-2

### RETAIL SALES FOR BRANCH DIVISION

Figures in Thousands

CITY	SALES 1963	COSTS 1963	GROSS PROFIT	PER CENT NATION SALES
Buffalo	\$ 800	\$ 625	\$ 175	0.2
Cincinnati	4,750	3,390	1,440	8.0
Detroit	5,880	4,970	990	11.2
Erie	350	285	75	0.06

Where the data cited under various columns is not uniform, either in content or character, both the Justowriter and the VariTyper offer facilities not available on the electric typewriter, with the Justowriter having the advantage of centering material of diverse widths automatically. (Example D-1 is set on Justowriter, D-2 on VariTyper.)

#### EXAMPLE D-1

Specifications:	3-jet	4-jet	6-jet
30° elbows	Not Required	Galv.-4	Galv.-4
1" O.D. lam.	40 ft. Opt.	Comp.	Tri.
1½" O.D. lam.	21 ft.	Comp.	Tri.
1½" O.D. shear	180° Bend	30 ft.	American-X

#### EXAMPLE D-2

Specifications:	3-jet	4-jet	6-jet
30° elbows	Not required	Galv.-4	Galv.-4
1" O.D. lam.	40 ft. Opt.	Comp.	Tri.
1½" O.D. lam.	21 ft.	Comp.	Tri.
1½" O.D. shear	180° Bend	30 ft.	American-X

Foreign languages have never presented a great problem to users of VariTyper because foreign language fonts have always been a feature of their library. The example is set on the VariTyper.

#### EXAMPLE E

Y así, bravo y sañudo, volvió el mancebo a la mesa y miró por todar partes. La mujer que estaba mirnado, creyó que estaba loco y no dijo nada.

— ¡Cómo, don caballo! ¿crees que de-

Ruled forms, diagrams and schematics require much the same treatment. The electric typewriter is quite serviceable for this kind of composition, particularly for internal-use forms and drawings. However, the wider carriage facilities of the VariTyper and its variety of type faces and styles, plus the ability to set copy

within previously ruled lines, and to fit copy to the space limits, have made this equipment outstanding for this particular usage.

### EXAMPLE F-1

#### FACTORY PRODUCTION REPORT

Date:		Foreman:				
Shift	Operator	Machine No.	Pattern No.	Count Prod/Waste	Total Product	Inspected by
1				/		
2				/\		
3				/\/\		
4				/\/\/\		
5				/\/\/\/\		

### EXAMPLE F-2

#### FACTORY PRODUCTION REPORT

Date:		Foreman:				
SHIFT	OPERATOR	MACHINE NO.	PATTERN NO.	COUNT PROD/WASTE	TOTAL PRODUCT	INSPECTED BY
1				/		
2				/\		
3				/\/\		
4				/\/\/\		
5				/\/\/\/\		

Example F-1 is set in IBM Registry. Example F-2 is set on the VariTyper with a variety of type faces selected to show the importance of the segment of the form or to fit a given area.

One of the outstanding achievements of cold type composition has been the facility to set mathematical, chemical and physical formulary at reasonable cost as compared with the penalty charges

for setting such material by traditional methods. The following examples are set on the VariTyper.

### EXAMPLE G

$$\begin{aligned} \chi^2 &= \sum_{j=1}^n [(p_j - P_j)^2 / P_j + (q_j - Q_j)^2 / Q_j] \\ (18) \quad &= \sum_{j=1}^n (p_j - P_j)^2 / P_j Q_j, \end{aligned}$$

where

$$q_j = 1 - p_j \quad \text{and} \quad Q_j = 1 - P_j.$$

Expression (18) appropriately may be called the Pearsonian  $\chi^2$ .

Recall from (11) that

$$P_j = \Phi(\alpha + \beta x_j).$$

Lists, catalogs, and periodically updated material are fairly expensive typesetting jobs by traditional methods in metal. In cold type, they are composed effectively, and economically. With the use of a sequential card system, it is possible to combine cold type composition with data processing to achieve multiple use of one type setting. Basically, a sequential card system consists of setting the type image on a card—usually one line at a time—then assembling the cards in the sequence desired, and passing the collection of cards through a high-speed camera which photographs each line in sequence, at size, reducing or enlarging the type. Rate of film advance is regulated to obtain the desired line spacing. End product is a negative to be used for making an offset printing plate.

While a final printed piece of the same sort of data can be produced by direct impression composition, such a method does not lend itself as easily to revision and updating as the card system.

There is virtually no limit to the kind of composition that can be set in cold type. By the judicious choice of method, and by selecting appropriate type styles and by planning the piece creatively, handsome typography may be economically produced.

It is imperative to insist on the use of equipment maintained in perfect condition—type-fit and alignment, sharp, unbroken, high contrast (no gray or mottled carbon coverage)—to produce clean reproduction copy.

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